

Diagnostic test accuracy pleura fluid/serum cholesterol ratio levels with Light's criteria as the gold standard transudate-exudate in pleural effusion

ABSTRACT

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Background: Pleural effusion is the accumulation of excessive pleural fluid above normal volume. Examination of pleural fluid is often required by the clinician to determine transudate-exudate classification. Light's criteria is the most common gold standard criteria for classifying transudate-exudate. Pleural fluid/serum (pf/s) cholesterol ratio is associated with inflammation that has important implications for clinical and epidemiology and relatively easy, inexpensive and can be done routinely in laboratories.

Aim: To determine diagnostic test accuracy levels of pf/s cholesterol ratio transudate-exudate pleural effusion.

Patients and methods: This study is a diagnostic test with cross-sectional approach, with pleural effusion patients who admitted to respirology department of RSDM Surakarta. Statistical analysis using the Shapiro Wilk \pm standard deviation (\pm SD) for normally distributed variables and median for abnormally distributed variables. Cut-off point pf/s cholesterol ratio using ROC curve which took the most extensive AUC area. Additionally, diagnostic test are measured using 2 point 2 table and sensitivity, specificity, PPV and NPV were account. Statistical analysis was using SPSS, $p < 0.05$.

Results: Total 38 patients were included in this study. Pleural fluid/serum cholesterol ratio had median value transudate 0.09 (0.02-0.32), and median value exudative 0.53 (0.27 to 2.55), $p = 0.000$ ($p < 0.05$). Based on ROC curve, AUC value was 0.993 with $p = 0.000$ ($p < 0.01$). Cut-off ratio pf/s cholesterol is 0.310, with OR = 324.0, sensitivity, specificity, PPV and NPV was 94.7%.

Conclusion: Diagnostic test accuracy levels pf/s cholesterol ratio with Light's criteria as the gold standard provides excellent value in determining transudate-exudate pleural effusion.

Keywords: Pleural effusion, transudate-exudate, Light's criteria, pleural fluid/serum (pf/s) cholesterol ratio.